

ART. XIX.—*Further Descriptions of the Tertiary Polyzoa
of Victoria.*—Part III.

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(With Plates XVII. and XVIII.).

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Bigemellaria pedunculata, McG. (Pl. XVII., Fig. 1).

Dr. MacGillivray states in his Monograph that none of his specimens of this species showed the upper termination of the zoarium. I have found a specimen showing it, but the lower portion is broken off.

The zoarium terminates with two zoœcia, between which is a triangular area; a ridge on each side extends from the upper part of the thyrostome of one zoœcium to that of the other, just below which, in the median line, is a small circular opening indicating that the zoarium, when perfect, consisted of internodes as in *Cellaria*, and that it was branched dichotomously.

Liriozoa lævigata, Waters, sp. (Pl. XVII., Fig. 2).

I have found many specimens of this species of which Dr. MacGillivray found only two, and while his figure is much better than that of Mr. Waters in Q.J.G.S., 1882, pl xii., it does not show any perforations in the wall of the zoœcia nor does he mention them in his description. Mr. Waters describes the zoœcia as "coarsely punctate," but also says "dorsal and anterior surface smooth." Some of my specimens are perfectly smooth, without any perforations and agree with Dr. MacGillivray's description and figures. Others have a few scattered perforations (or rather minute circular depressions, as they do not extend far down in the cell wall) over the zoœcia with two rows of perforations on the back of the central zoœcium, but I have met with none that I would call "coarsely punctate."

Calwellia otwayensis, n. sp. (Pl. XVII., Fig. 3).

Zoarium phytoid, dichotomously branching. Zoëcia infundibuliform, in pairs, back to back, each pair facing at right angles to the adjoining pairs. Thyrostome horizontal, semi-elliptical; peristome irregularly projecting outwards; occasionally a small oval sessile avicularium on the inner edge of the peristome having a triangular mandibular cavity separated by a bar from a small semi-circular area; a few pores on the inner edge of the zoëcia, also on the tubular prolongation.

Locality.—Aire River, Cape Otway. (Messrs. Hall and Pritchard).

This genus has not been found fossil before.

Fig. 3*b* is drawn from a fragment and shows the upper part of two zoëcia seen from above; there are two perforations, indicating the position of avicularia.

Fig. 3*c* shows a perfect avicularium with the cross-bar.

Cellularia triangulata, n. sp. (Pl. XVII., Fig. 4).

Zoarium continuous. Zoëcia biserial, somewhat turbinate. Aperture oval, occupying about two-thirds of the area of the zoëcium; margin thickened; a sessile avicularium below the aperture with an acute mandible opening upwards and inwards; there are indications of a marginal spine on the exterior side of the zoëcia near the top. Dorsal surface of the zoarium very smooth, elevated longitudinally into a prominent ridge, making the zoarium triangular in section; zoëcia totally undefined.

Locality.—Bairnsdale. (J. Dennant).

A single specimen. I am doubtful whether this should be referred to *Cellularia* or *Menipea*, as the species of the former genus are without avicularia as a rule, and those of the latter have marginal avicularia which this species has not, but, I think, considering the zoarial character it had better be placed in *Cellularia* at present.

Scrupocellaria glomerata, n. sp. (Pl. XVII., Fig. 5).

Zoëcia quadri-serial elongate, marginal ones somewhat pyriform in front; aperture elongate with a broad granular margin sloping inwards, sometimes slightly constricted near the upper part; a

sessile avicularium, with a small subcircular mandibular area, below the aperture. Dorsal surface shows the backs of only two rows of zoëcia (the marginal), which are so much broader than the front that they meet in the centre, the central zoëcia must consequently be smaller than the marginal and heaped up; a vibraculum at the base of each (marginal) zoëcium.

Locality.—Mitchell River. (J. Dennant). A single specimen only.

***Amastigia acuminata*, n. sp.** (Pl. XVII., Fig. 6).

Zoëcia biserial, alternate; outer angle produced into a long conical spine; aperture oval, almost covered with a pedunculate, broadly spatulate scutum. The dorsal surface has a narrow median ridge, the upper and lower boundaries of the zoëcia are defined by a linear depression; an avicularium, with an acute mandible pointing downwards on each zoëcium.

Locality.—Moorabool. (T. S. Hall). A single specimen.

***Caberea morningtoniensis*, n. sp.** (Pl. XVII., Fig. 7).

Zoëcia tri- or quadri-serial, elongate; aperture occupying a little more than half the surface, elongated, oval, slightly constricted near the upper part; margin granulated; two spines on each side above the constriction; two sessile avicularia below the aperture, and a small sessile avicularium on the upper and outer angle of the marginal zoëcia. Oëcia mitriform, convex, smooth; a sessile avicularium with long triangular mandible on each side above.

Locality.—Mornington. (T. S. Hall).

This differs from *C. grandis* in that it has two spines on each side of the marginal and central zoëcia, that species having only one on each side of the central zoëcia, and two on the internal, and one on the external angle of the marginal zoëcia; the avicularia are larger, especially those above the oëcia, and the oëcia have no thickened rim.

***Menipea retroversa*, n. sp.** (Pl. XVII., Fig. 8).

Zoarium continuous, dichotomously branched. Zoëcia biserial, elongate, slightly narrowed below; aperture oval, occupying about two-thirds of front; a small round avicu-

larium below aperture; lateral avicularia facing backwards with mandible pointing upwards. Dorsal surface smooth; zoëcia distinct, a narrow ridge dividing them longitudinally.

Locality.—Spring Creek. (T. S. Hall).

A single specimen. It is almost diaphanous and is partially obscured by small fragments of matrix. The lateral avicularia are peculiar in that they face backwards and can hardly be detected on the front view; their position, I think, precludes the idea of their being vibracula, therefore I refer the species to *Meniæpa*.

***Meniæpa bicellata*, n. sp.** (Pl. XVII., Fig. 9).

Zoëcia in internodes of two only, broad above, attenuated below; aperture sub-circular with broad plate slanting inwards on lower edge; four spines on upper margin; a small avicularium below the lower lip, sometimes absent; no lateral avicularia.

Locality.—Moorabool and Muddy Creek. (T. S. Hall).

***Meniæpa biaviculata*, n. sp.** (Pl. XVII., Fig. 10).

Zoarium articulated (?). Zoëcia biserial, elongate; aperture occupying two-thirds of the area; margin granular; a small lateral marginal avicularium on the upper and outer angle of the zoëcia; a large avicularium on the margin near the base of the zoëcia on one side of the zoarium only. Zoëcia defined on the dorsal surface.

Locality.—Aire River, Cape Otway. (Messrs. Hall and Pritchard).

I refer this to *Meniæpa*, but the large marginal avicularia on one of the two series of zoëcia are very peculiar and more noticeable on the dorsal aspect. The zoarium is probably articulated as the structure of the upper part plainly indicates such, especially on the left hand side (in the figure).

***Cellaria contigua*, McG.** (Pl. XVII., Fig. 11).

In some material from Muddy Creek I have found a specimen of this species in which there is an avicularian mandible *in situ*. As will be seen it is long, acute, slightly oblique, and extends beyond the avicularian chamber, of which one, without the mandible, from the same specimen, is drawn on the same scale.

Locality.—Muddy Creek. (J. Dennant).

This is a most interesting specimen, as I am not aware that an avicularian mandible has ever been found preserved in fossils; the locality, some sixty miles from the sea, precludes the idea of its being a recent specimen, and besides it is not a recent species.

Cellaria oviceglosa, Stoliczka. (Pl. XVIII., Fig. 12).

I give a figure of this species as Stoliczka does not notice the margins of the zoëcia, he only shows the raised area with smooth interspaces and speaks of the zoëcia as "*cellulis magnis distantibus*;" his specimen was probably much worn, as the "natural size" figure shows it to have been a very small fragment. The margins are linear ridges but slightly elevated above the surface, and show the zoëcia to be diamond shaped, or rather oval with pointed distal and proximal extremities.

The species which Mr. Waters identified with this has been renamed by Dr. MacGillivray *C. laticella*, and the figures given by both all show the raised portion of the zoëcia as more or less pointed below, whereas in Stoliczka's figure of *C. oviceglosa* the proximal end has the same curve as the upper or distal part and it is consequently not oval, but elliptical as in the specimen I have figured.

Cellaria enormis, n. sp. (Pl. XVIII., Fig. 13).

Zoarium very robust, clavate. Zoëcia very large, hexagonal with upper and lower ends truncated horizontally; margins raised; thyrostome arched above, straight below with two denticles on lower margin; avicularian cells larger and broader than the others, with the upper half of the margin curved; avicularian opening large, arched above, slightly concave below and a raised margin round it.

Locality.—Balcombe Bay, Mornington. (T. S. Hall).

This species is remarkable for the large size of the zoarium and zoëcia and for the very large avicularia.

Cellaria crassimarginata, n. sp. (Pl. XVIII., Fig. 14).

Zoarium robust, oval in section, upper portion raised into two prominences from each of which an internode arises. Zoëcia

elongated, diamond shaped with slightly truncated distal and proximal extremities; margins raised; thyrostome subtriangular with a thickened peristome, lower lip incurved.

Locality.—Orphanage Hill, Geelong. (T. S. Hall).

This is a very peculiar species as the upper portion of the zoarium diverges into two elevations to each of which an internode is apparently attached and the peristome is thickened and raised above the surface of the zoëcia. The two upper apertures may be avicularia, as they are not of the same shape as the thyrostome.

Cellaria depressa, n. sp. (Pl. XVIII., Fig. 15).

Zoarium very robust. Zoëcia diamond shaped (very slightly truncated horizontally) with linear raised margins, within which the surface of the zoëcia is raised as a broad slightly convex ridge round the sides; middle of the zoëcia depressed; whole surface granulated; thyrostome near the distal end, arched above, straight below, with two denticles in lower lip.

Locality.—Shelford. (T. S. Hall).

In the size of the zoarium and zoëcia this is very similar to *C. crassimarginata*, but otherwise quite distinct.

Cellaria tumida, n. sp. (Pl. XVIII., Fig. 16).

Zoarium long and slender. Zoëcia irregularly hexagonal, very tumid; margins invisible, deeply sunk; thyrostome in the centre of the zoëcia, more or less crescentic, much depressed.

Locality.—Mitchell River. (J. Dennant).

This is a very peculiar species, the tumid or swollen appearance of the zoëcia being quite unlike any other; the portion of the internode found is very long in proportion to its diameter.

Bicellaria elongata, n. sp. (Pl. XVIII., Fig. 17).

Zoëcia elongate, turbinate, much produced below; aperture ovoid, occupying about a third of the area; two spines at outer angles. Dorsal surface smooth, ventricose above; zoëcia divided by a narrow longitudinal ridge.

Locality.—Mornington. (T. S. Hall).

The specimen is small, consisting of three zoëcia only, but is in very good preservation save that the spines are broken off. The dorsal surface of the ventricose portion of the topmost zoëcium is concave with a slightly thickened margin, part of which is seen through the aperture in the front view; this I think shows that it once bore an oëcium, which has been broken off. The zoëcia are more closely connected than those of the recent species of *Bicellaria*, but I think there is no doubt it belongs to that genus.

EXPLANATION OF FIGURES.

PLATES XVII. AND XVIII.

- Fig. 1. *Bigemellaria pedunculata*.
 „ 2. *Liriozoa lævigata* (front aspect).
 „ 2a. *Liriozoa lævigata* (dorsal aspect).
 „ 3. *Calwellia otwayensis*.
 „ 3a. *Calwellia otwayensis* (more highly magnified).
 „ 3b. *Calwellia otwayensis* (upper part of two zoëcia seen from above).
 „ 3c. *Calwellia otwayensis* (thyrostome and avicularium).
 „ 4. *Cellularia triangulata*.
 „ 4a. *Cellularia triangulata* (more highly magnified).
 „ 5. *Scrupocellaria glomerata*.
 „ 5a. *Scrupocellaria glomerata* (dorsal surface).
 „ 6. *Amastigia acuminata*.
 „ 6a. *Amastigia acuminata* (dorsal surface).
 „ 7. *Caberea morningtoniensis*.
 „ 7a. *Caberea morningtoniensis* (more highly magnified).
 „ 8. *Menipea retroversa*.
 „ 8a. *Menipea retroversa* (dorsal surface).
 „ 9. *Menipea bicellata*.
 „ 9a. *Menipea bicellata*.
 „ 9b. *Menipea bicellata* (dorsal surface).
 „ 10. *Menipea biaviculata*.
 „ 10a. *Menipea biaviculata* (dorsal surface).
 „ 11. *Cellaria contigua* (avicularian mandible).
 „ 11a. *Cellaria contigua* (avicularian cell).

